

DEPARTMENT OF HEALTH SERVICES  
1515 CLAY STREET, SUITE 1700  
OAKLAND, CA 94612  
(510) 622-4500



February 28, 2000

**Dear resident of the Oroville area (including south Oroville, Palermo and Thermalito):**

This letter is for people who eat eggs or meat from chickens raised on soil in the greater Oroville area. Since 1987, the California Department of Health Services (CDHS) has been investigating contamination by two types of chemicals (dioxins and furans) in several areas of California. Eggs from chickens raised in direct contact with the ground and soil from a number of homes in the greater Oroville area have been tested. Dioxins and furans were found.

The health risks from eating eggs from chickens raised on soil in the greater Oroville area are very small. Although these health risks are very small, CDHS feels that it is important to inform you of these findings:

- **CDHS recommends not eating home-produced eggs and meat from chickens raised on soil in your area.** Eating eggs and meat from chickens raised in pens or cages above the ground in your area should not be a concern.
- **It is safe to eat washed fruits and vegetables grown in the area:** Dioxins and furans are found in fat. Because fruits and vegetables have little fat, it is unlikely they contain dioxins or furans.
- **It is safe for people and pets to come into contact with soil:** Chickens have much higher contact with soil than people. The levels of dioxins in soil of the Oroville area do not pose a significant health risk to adults, children or pets who breathe dust or have contact with the soil.
- **Chicken eggs and meat from the supermarket are safe to eat:** However, when eating any eggs, health guidelines should be followed. These guidelines recommend that everyone eat no more than three to four eggs per week in order to reduce the risk of heart disease.

The enclosed pages provide additional information on how eating eggs from chickens raised on soil at homes in your area may affect your health. Also enclosed is an informational page for those who want to continue to eat eggs or chicken meat from homes in the greater Oroville area.

If you would like more information on this issue, please fill out and mail the enclosed form. If you would like to speak to someone, please call the Environmental Health Investigations Branch (EHIB) at (510) 622-4500. You may call collect. You may also email questions to EHIB staff at [mharnly@dhs.ca.gov](mailto:mharnly@dhs.ca.gov) or [trojas@dhs.ca.gov](mailto:trojas@dhs.ca.gov).

Sincerely,

(signed R. Neutra/RC)

Raymond Richard Neutra, M.D., Dr.P.H., Chief  
Division of Environmental and Occupational Disease Control



## MORE INFORMATION ON DIOXINS AND FURANS IN HOME-PRODUCED CHICKEN EGGS FROM THE GREATER OROVILLE AREA

**Where do dioxins and furans come from?** Dioxins and furans are two groups of chemicals that are unwanted by-products of some manufacturing processes, including burning of waste, chemical manufacturing and paper pulp bleaching. Forest fires and automobile exhaust are minor sources of dioxins and furans everywhere. When the wood preservative pentachlorophenol (PCP) is made, dioxins and furans are also formed. PCP was used between 1955 and 1988 at a wood-treatment facility in the area south of Oroville. Dioxins and furans may also be formed when PCP or PCP treated wood is burned. In the 1970's several teepee burners in the area burned wood waste products. In 1987 there was a large fire at the Oroville wood treatment facility (then named "Kopper's"). Testing of frozen animal product samples has shown animal product contamination to have been present before the 1987 fire.

**How do home-produced eggs become contaminated?** When dioxins and furans are released into the air they generally land on plants and soil. Dioxins and furans remain in the soil for decades. Chickens raised on the ground constantly peck at and eat soil. These chemicals are then stored in the chicken fat. Chickens that live on soil with very low levels of dioxins and furans may produce contaminated eggs.

**How can eating home-produced chicken eggs affect my health?** Eating eggs with dioxins and furans will not make you immediately sick. You cannot taste dioxins and furans in contaminated eggs. Dioxins and furans build up in your body over time. It may take years of regularly eating contaminated eggs to get to levels that may be of concern to your health. Most of what is known about the dioxins and furans is based on studies in animals. Feeding laboratory animals much higher amounts of dioxins and furans than what is in contaminated eggs has led to cancer, decreased weight at birth, birth defects, liver damage, and a lowered ability of animals to respond to infections.

**What is the cancer risk?** Of the 17 dioxins and furans that were measured, one dioxin (2,3,7,8-tetrachlorodibenzo-*p*-dioxin) is the most harmful and may cause cancer in humans. For the average level of dioxins and furans found in eggs from chickens raised on soil in the greater Oroville area, we estimate:

- If 100,000 people ate one egg per week for 70 years, at most, one of those 100,000 may get cancer.
- Another way of saying this estimate is that people eating one home-produced chicken eggs from your area per week have a 0.001% chance of getting cancer from eating these eggs over a lifetime.

This risk is very small. This small risk would be in addition to the approximately 33% of people (or one in three) who will get cancer in their lifetime from other causes. However, it is above that at which health departments and regulatory agencies may take action or inform people of a health concern.

**Has contamination gone down with time?** Chicken egg and soil samples from the greater Oroville area were tested for dioxins and furans in the late 1980's and CDHS made similar recommendations. In the 1990's more egg and soil samples were tested. Levels of these chemicals in Oroville eggs and soil have not gone down with time.

**What about other animals and their products?** At homes, other animals graze in different ways and eat different amounts of soil than chickens. It is generally not known what contamination levels are in other home-raised animal products. In the Oroville area, the number of homes with other animal products was small. Sampling of home-raised beef from one household was shown to be at levels of health concern. This household was in the area south of Oroville where home raised chicken egg and soil contamination was higher. Farming practices at that home were

very different from commercial farming practices. Animal products from the supermarket do not have significant contamination.

**What about other areas of California?** CDHS has tested for dioxins and furans in eggs from chickens raised on soil at homes in two other industrial areas and one other rural area of California. The other industrial areas had significant egg contamination. CDHS is the only state agency in the country that has investigated dioxin and furan home-produced animal product contamination. However, no one has tested animal products raised at homes in urban areas that could also be affected by many sources of dioxins and furans.



**REDUCING THE HEALTH RISK  
DIOXIN AND FURAN CONTAMINATION IN HOME-PRODUCED CHICKEN EGGS  
FROM THE GREATER OROVILLE AREA**

*The best way to lower your exposures is to not eat home-produced eggs and meat from chickens raised on soil. Raising chickens in cages or pens above the ground will significantly reduce levels of dioxins and furans. Getting a new flock of chickens is also recommended.*

For those who want to continue to eat home-produced chicken eggs, there are other things that can reduce the health risk.

**Chicken Raising Practices:** Several other things may lower the amounts of dioxins and furans. However, these things will not be as good as raising chickens above the ground:

- ***Enclose chickens in a coop or pen:*** Limiting the area that chickens forage by keeping them inside an enclosed pen may reduce egg dioxin concentrations. This reduces foraging activity and soil contact.
- ***Have a barrier such as gravel or straw between the chickens and the ground:*** This may help to reduce the amount of dioxins and furans in chickens and their eggs. The California Department of Food and Agriculture recommends this also to prevent the spread of infectious diseases in poultry.
- ***Remove backyard dioxin sources:*** From backyards where chickens are raised, remove any wood thought to be treated with pentachlorophenol (PCP) (for example, scrap pieces of telephone poles). Railroad ties and chemically treated wood that is a light green color is generally not treated with PCP. Do not burn any treated wood. Ash piles created by the burning of PCP-treated wood should also be removed.

**Eating Habits:** All of the dioxins and furans in contaminated eggs and meat are in the fat. Eating habits that lower the fat intake from home-produced chicken eggs and meat will reduce the health risk.

- ***Eat only the egg white:*** All of the fat in chicken eggs is in the yolk. Egg whites are fat-free, cholesterol-free and rich in protein. The egg whites from chickens raised on soil contain no dioxins and furans and are safe to eat. When using eggs in recipes, generally you can use two egg whites in place of one whole egg.
- ***Remove the fat from chicken meat:*** The skin of the chicken has high levels of fat. If you continue to eat chicken meat, remove as much of the skin and other sources of fat as possible. Avoid eating the chicken livers.

A technical report on dioxins and furans in home-produced contaminated eggs in the greater Oroville area and elsewhere is available. In the past, people have also asked us about having a laboratory test their soil, eggs, and other animal products to find out whether products from their home are safe. This testing costs about \$1,000 or more per sample. A federal grant paid for this recent testing. To receive the technical report or more information on laboratory testing, please fill out and mail the enclosed form or write Martha Harnly or Tivo Rojas, Environmental Health Investigations Branch, 1515 Clay St, Suite 1700, Oakland, CA 94612. You may also call them collect at 510-622-4500 or email questions to EHIB staff at [mharnly@dhs.ca.gov](mailto:mharnly@dhs.ca.gov) or [trojas@dhs.ca.gov](mailto:trojas@dhs.ca.gov).